Natural RPC Version 5.1.1

As of Natural Version 3.1.6 for Mainframes, the Natural Remote Procedure Call is available as a separate subcomponent of Natural. This measure will enable the Natural development team to provide new Natural RPC versions independent of new Natural versions for the various platforms supported. Currently, the old and the new Natural RPC versions are both available.

> **Note:**
> The default installation of Natural Version 3.1.6 will use the old Natural RPC version.
> For details on installing the new Natural RPC with Natural Version 3.1.6, see RPC Installation on Mainframe Platforms.
> It is not possible to use the new Natural RPC version with Natural Version 3.1.5 or below.

This section describes the product features, changes and enhancements introduced with Natural RPC Version 5.1.1. The following topics are covered:

New Features:

- Maximum Length for Node and Server Names Increased to 32 Characters
- Support of the EntireX Broker ACI V6
- Support of SSL for the TCP/IP Communication
- Support of EntireX Location Transparency
- New User Exit USR2035N
- Prerequisites

SYSRPC Utility Enhancements and Modifications:

- Support of Long Node and Server Names
- Support of EntireX Location Transparency
- Add Properties for Old Remote Directory and the Transport Protocol to Local Directory

Changed Features:

- Implicit END TRANSACTION in a Conversation
- Release of Adabas Retain Sets
- Enhancements to User Exits
- Enhancements to Status Functions

Natural RPC Installation:

- Installation of New Natural RPC
- RPCSIZE Considerations

New Features

Maximum Length for Node and Server Names Increased to 32 Characters

With Natural RPC Version 5.1.1, the maximum length for node and server name has been increased to 32 characters to be compliant with the EntireX Broker ACI. This enhancement allows you to specify a fully qualified TCP/IP node name and makes the etc/hosts and etc/services definitions obsolete.

Neither the interface nor the internal structure of the local directory NATCLTGS has been changed. See also Support Long Node and Server Names below.

Support of the EntireX Broker ACI V6

The Natural RPC profile parameter ACIVERS has been enhanced to enable you to specify Version 6.

The specification of ACI Version 6 is strongly recommended if you are using the TCP/IP stub EXAAPSC (CICS only). In this case, Natural will use the TERMINATE option for the LOGOFF from the EntireX Broker.

Support of SSL for the TCP/IP Communication

Secure Socket Layer (SSL) support for the TCP/IP communication to the EntireX Broker has been introduced. To enable the EntireX Broker to recognize that the TCP/IP communication should use SSL, you have to use one of the following methods:

- Append the string :SSL to the node name.
- Prefix the node name with the string //SSL:

To use SSL, an SSL parameter string must be passed to the EntireX Broker on the very first call.

For more details about SSL and the SSL parameter string, see the EntireX documentation.

Note:
The SMARTS-based EntireX broker stub EXAAPSB or EXAAPSC must be used for this feature.

Support of EntireX Location Transparency

With EntireX, location transparency is possible. Instead of using the physical node name and the physical server name, a server can be addressed by a logical name. The logical name is mapped to the physical node and server names using directory services.

To take advantage of location transparency, the Natural RPC has been enabled to accept a logical name wherever only a physical node and a physical server name could be specified before. The logical name is passed to the EntireX Broker before it is used the first time.

The maximum length of a logical name is 192 characters. To avoid new Natural profile parameters, a logical name is specified in the server name and node name part of the already existing parameters. There are two kinds of logical names:

- **Logical node names**
  With a logical node name, you specify a logical name for a node only in conjunction with a physical server name.
- **Logical services**
  With a logical service, you specify a logical name for both the node and the server. To define a logical service, the node name has to be set to *, and the server name contains the logical service name.

The following components refer to node and server names:

- The keyword parameters SRVNODE, SRVNAME, DFS and RDS of the NTRPC macro for static specification, or the subparameters with the same name of the profile parameter RPC.
- Service maintenance of the SYSRPC utility
- Service directory (NATCLTGS)
- User exits USR2007N, USR2071N
- Service programs RPCERR, RPCINFO

The new information about logical service names is stored in the local directory NATCLTGS without changing its interface or its internal structure. All information is stored as attribute/ value pairs and the logical service names are just added under a new attribute.

The interface to the user application programming interfaces (user exits) USR2007N and USR20071N has not been changed. To be able to retrieve or specify long logical service names, the respective PDA fields have been defined with the VALUE RESULT option and their length has been increased.

Note:
The SMARTS-based EntireX broker stub EXAAPSB or EXAAPSC must be used for this feature. In addition a directory service is required.

New User Exit USR2035N

For the support of the Secure Socket Layer (SSL) communication, the new user exit USR2035N is provided to set the required SSL parameter string.

Prerequisites

- SMARTS-based EntireX Broker stubs EXAAPSB/EXAAPSC (including SMARTS) if you want to use SSL and/or location transparency.
- Directory services if you want to use location transparency.

SYSRPC Utility Enhancements and Modifications

With Natural RPC Version 5.1.1, the following changes and enhancements have been made to the Natural SYSRPC utility:

- Support of Long Node and Server Names
- Support of EntireX Location Transparency
- Add Properties for Old Remote Directory and the Transport Protocol to Local Directory

A short description of these changes and enhancements is given below. For more details, refer to the SYSRPC utility documentation.

Support of Long Node and Server Names

To be compliant with the EntireX Broker, the Service Directory Maintenance function enables you to specify node and server names of up to 32 characters. For compatibility reasons, a new editing functionality of the Service Directory Maintenance is provided in addition to the existing one. The new editing functionality will only be used if the new Natural RPC is activated. Otherwise, the old editing functionality will still be used.

Support of EntireX Location Transparency

To support the EntireX Location Transparency, the Service Directory Maintenance function enables you to specify logical node names and logical services of up to 192 characters. For compatibility reasons, this support is only available if the new Natural RPC is activated.

Add Properties for Old Remote Directory and the Transport Protocol to Local Directory

The RDS specific properties "expiration time" and "unique directory identifier" are integrated into the local directory using appropriate tags.

The property "transport protocol" has also been added, which makes the Natural profile parameter ACIPATT obsolete. For compatibility reasons, ACIPATT is still supported, but ignored.

Changed Features

- Implicit END TRANSACTION in a Conversation
- Release of Adabas Retain Sets
- Enhancements to User Exits
- Enhancements to Status Functions

Implicit END TRANSACTION in a Conversation

If ETEOP=ON has been set on the Natural RPC server side, an implicit END TRANSACTION statement is issued at the end of the execution of each remote subprogram. This may lead to inconsistent data in the database if a conversation is established which should be rolled back as part of the database transaction when the modifications are already committed.

With Natural RPC Version 5.1.1, the ETEOP setting has no effect on the conversation. An implicit END TRANSACTION is still executed after execution of the last remote CALLNAT of a conversation.

Non-conversational CALLNATs are not affected.

Release of Adabas Retain Sets

At the end of a non-conversation CALLNAT and at the end of a conversation, a RELEASE SETS is issued to release all Adabas retain sets. This ensures that the next request which may be for a different client will not see the data.

Enhancements to User Exits

To support long node and server names, the user exits USR2007N and USR2071N have been enhanced to accept and return node and server names having a length of up to 192 characters. Existing callers who are using 8-character-long names will still work and need not be adapted.

Enhancements to Status Functions

To support long node and server names, the RPCERR program and the RPCINFO subprogram have been enhanced.

- RPCERR
  shows the up to 32 character long physical node and server names. The display window has been adapted accordingly. For compatibility reasons the long names will only be shown if the new RPC is activated for this session. Otherwise, the short names will still be shown.
- RPCINFO
  returns the up to 32 character long physical node and server names. Existing callers which use 8 character long names will still work and need not be adapted. For compatibilty reasons, the RPCINFOL local data area still uses 8-character-long node and server names.

Natural RPC Installation

Installation of New Natural RPC

The new Natural RPC can be activated using one of the following methods:

- **Static Approach**
  Link NATRPC51 instead of NATRPC to your Natural nucleus.
- **Dynamic Approach**
  Specify:

```
RCA=NATGWRPC RCALIAS=(NATGWRPC,NATRPC51)
```

This will dynamically load the new Natural RPC runtime module NATRPC51.

Note Concerning CICS:
A PPT entry has to be defined to enable the loading of NATRPC51.

RPCSIZE Considerations

The new Natural RPC requires about 1 KB more working storage in the (client and server) settings of the RPCSIZE profile parameter which determines the size of the buffer used by the Natural RPC. On the server side, additional 2 KB (approximately) are required per 100 CALLNAT parameters passed to the server.

Depending on your environment, you may have to increase the RPCSIZE accordingly.